

Engineering Weekly Report 3/2/2023 - 3/9/2023

Executive Council Notes

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Individual Activities

- Michael Anderson
- Kevin Barnard
 - Out of Office
 - 2/27-3/10 CSIRO visit
- Francois Cazenave
 - 901405 - PowerBuoy Development
 - Shipped tether to TMT
 - Reassembled the buoy
 - Supervising fabrication of new tether guide
 - 902106 - Niobicon-Based AUV Docking Development
 - Supervising fabrication of new buoy and anchor
 - Preparing for deployment
- Danelle Cline
 - Out of Office
 - Few sick days
 - Tentative out of office vacation Jan 25, 26, 27
- Duane Edgington
 - 901103 - Biodiversity and Biooptics of Zooplankton
 - Summer intern candidates selected. Offer extended to one candidate.
 - Exploring candidate tools/methods for active learning support
 - 901502 - Passive Acoustic Sensing
 - Team meeting
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Working session with Danelle to bring up YOLOS and SAHI on AWS SageMaker Studio, and to pump aerial images to S3 bucket.
 - Team meeting.
 - 902004 - Planktivore
 - Weekly meeting
 - Overhead
 - Group meeting
- Jon Erickson
- Kevin Gomes
 - 200105 - Core Navigation Data - MDUC
 - Looking into creating some simple command line simulators just to help with development
 - 300070 - DMO Divisional Support - Ventana
 - Working on changes to custom logger to work better with GreenSea workspace replay
 - Bringing systems back up on Carson
 - 300079 - DMO Divisional Support - Rachel Carson

- Troubleshooting an issue with the Leica GPS. It died before the shipyard and it's back up and running, but data feeds are not making it to navproc for some reason.
- 706008 - READI-net
 - Follow up meetings to parse through user feedback for handoff to BBWS
- 901009 - CANON
 - Looking at upgrading ODSS on zuma on Carson.
- Out of Office
 - Mar 30, 31: Vacation
 - Aug 28-Sep 12: Vacation
- Andy Hamilton
- Kent Headley
 - 300057 - Mooring Maintenance
 - Jared and I are closing in on the root cause of a couple of OASIS GPS issues: a possible warm-up time violation for newer GPS models and a conflict between the gpssclock and gps drivers. Good news is that we've been able to get a new GPS working w/o software changes (but w/o gpssclock driver)
 - Resurrected the OASIS3 tool chain and was able to build and program O3 persistors
 - 300078 - DMO Divisional Support - AUV
 - Working on several proposed updates related to TRN for the dorado linux port
 - 902204 - Scalable Robotics
 - Fixed a bug in gemini lstream configuration app
 - Worked with Bastian to resolve a dependency conflict between the Gemini SDK and FFMPEG package. The issue was that a mutual dependency, libavcodecs, was not API compatible. Wrote a script to install the Gemini SDK to an alternative path, and use ldconfig to adjust the runtime linker search path. Thanks to Brent Roman for the consultation.
 - Overhead
 - Hiring: feedback for RRE role, scheduling meeting for SE-DA to discuss status and reviewing applications
 - Misc admin
 - Out of Office
 - medical (3/10 a.m.)
- Rich Henthorn
 - 600034 - Precision Control Technologies for ROVs and AUVs
 - Addressing some issues Rock is having with batch processing of TRN replays
 - 901405 - PowerBuoy Development
 - Progress on the sim_pblog module for csv-logging of buoy simulation
 - 901618 - Pelagic-Benthic Coupling
 - Rover lab cleaning
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Meeting - discussed May SES deployment
 - Working on dev stack while SES is undergoing maintenance, prep for May deployment
 - Out of Office
 - Mar 20 - 23: Vacation (TuTh), WFH (MW), PDT
 - May 3: SES deployment near MARS node
 - June 28: SES recovery near MARS node
 - June 29 - July 10: Vacation
 - July 24 - 27: Vacation
- Brett Hobson
- Scott Jensen
- Brent Jones

- 901805 - Coastal Biogeochemical Sensing Program
 - Flying spray 29 and 34
 - Testing WG tracking code using elevation
- 902004 - Planktivore
 - Building jetson for testing planktivore code
- Chad Key
 - 901101 - Seafloor Mapping
 - Sent 3 Focal boards back for repair.
 - 901206 - Coastal Profiling Float
 - Found the issue with the i2c problem (wrong version of energy monitor IC was installed)
 - Still bringing up the LHE primary batt pcb
 - 901704.99 - Benthic Observing System Maintenance
 - Working out details to xfer the BOSS to CSUMB
 - Troubleshooting PDU fuse issue
 - 901700 - Acoustic Ecology
 - Waiting on final input from Battery Safety Committee
 - Overhead
 - Working on a new collaborator's agreement with Cal Poly (Vladimir Prodanov)
- Brian Kieft
 - Out of Office
 - 3/6 - 3/8
 - 3/29 - 3/31
- Denis Klimov
- Eric Martin
 - 901101 - Seafloor Mapping
 - Tuned into the Falkor cruise a bit. Fielding a couple questions from Erik T
 - 901206 - Coastal Profiling Float
 - Lots of tank testing
 - 901911 - ROVVR
 - Selected intern and will likely have Shovan from Florida here this summer
 - 902204 - Scalable Robotics
 - Hiring committee
 - Meeting with Mini group to refit sled.
 - Reviewing GT's board presentation
- Thom Maughan
 - 901805 - Coastal Biogeochemical Sensing Program
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 - 902004 - Planktivore
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 - Overhead
 - Weekly techfest, ISFET is being study in depth
 - Out of Office
 - Take son to school day (3/8, 4/5), work at home am, on campus 1-4
 - week vacation possibly in March.
 - Vacation June 28 - July 12
- Mike McCann
 - 200105 - Core Navigation Data - MDUC
 - Updating ship_and_rov_core_data_workflow.md with new expd_mapping workflow
 - 901910 - Plankton Taxonomic Groups from AUVs
 - Revised 5.2-mpm-bg_biolume-PiO-paper Notebook to get better agreement

- Reprocessing auv-python generated 1 Second data with the Notebook method
 - Will be reloading https://stogs.shore.mbari.org/stogs_auv_compare to validate
- Out of Office
 - March 9, 13 Vacation days
- Rob McEwen
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Recommended fixing the unplanned dock by just drifting for 15 minutes immediately after undocking. It's an easy fix.
 - Discovered why sometimes the vehicle doesn't know it missed the dock. It's because the DAT validity checks ignore hits that don't have all good data, principally bearing. Then, the rangeClosing function ceases to get sufficient data to determine the range is increasing because the DAT doesn't get good bearings when the transponder has passed behind the vehicle. However, it is still getting good ranges. So we need to adjust the code so that rangeClosing() just looks at ranges irrespective of whether the bearing is valid.
 - 901405 - Wave Energy Buoy
 - Recomputed the added mass moments of inertia for the three components to be about the center of mass. It turns out that this is what Gazebo needs.
 - Updated the document, theory.md, and the Matlab code.
 - Pushed these into my branch and issued a pull request.
- Paul McGill
 - 901618 - Pelagic-Benthic Coupling
 - Did Rover lab cleanup with Alana and Rich H. Still more to deal with but much progress has been made.
 - 902304 - Piscivore Cam
 - Tested new code with George to power up camera and start recording—it works.
 - Built new camera controller board to interface with Pololu power supply for testing next week.
 - 902305 - Event Detection using the Sedimentation Event Sensor
 - Disassembled, cleaned, inspected, and replaced o-rings on SES camera and fluorometer with Irene H's help.
 - Opened SES battery sphere after wasting hours of Paul C's time removing a galled titanium screw.
 - Overhead
 - Helping Greg V. with Test Tank ground-fault detector system so Doc Ricketts can go into tank.
- Tom O'Reilly
 - 901902 - Unoccupied Aerial Vehicles for Science, Operations, and Outreach
 - Develop plans for next over-ocean flights, possibly next week, weather permitting. We plan to assess visibility "jelly-like" submerged objects, in this case a Secchi disk suspended at various depths from the Paragon, while the Trinity UAV with Sony science camera flies over at 60 meters altitude. We may also fly a RedEdge 10-channel multispectral camera payload (with includes near IR bands) to assess kelp and other chlorophyll spectral signatures; we plan to fly over the MLML kelp tanks just south of MBARI for this purpose.
 - Meeting on 3/13 with collaborators Elliot Hazen (UCSC) and JC Clark (NOAA UAV pilot) to discuss further collaboration activities, ranging from science applications to flight planning through post-processing and machine-learning.
 - Refining post-flight processing, including use of post-processing kinematics (PPK), which utilizes differential GPS groundstations within 100 km to greatly improve GPS accuracy.
 - 902101 - LRAUV Technology Development and Fleet Operations
 - Working with Kieft and Rueda to connect acoustic messages retrieved by Wave Glider hotspot with the LRAUV 'dash' user interface. This will enable dash users to monitor acoustic modem

message exchanges between LRAUV and Wave Glider, as well as LRAUV-to-LRAUV . We expect this capability to be quite useful for the upcoming EcoHab campaign.

- Mike Risi
 - Out of Office
 - Out of office on Fridays
- Paul Roberts
 - 701164 - SnoCam+ Research
 - finalizing optics and sensors for prototype system
 - 901809 - Deep Sea Bioinspiration
 - Midwater sled fitup and tracking testing
 - EyeRIS (Moore Foundation) project wrapup
 - 902004 - Planktivore
 - Migration and consolidation of planktivore V1 and Chiton code for LRAUV integration
 - 902204 - Scalable Robotics
 - Flat port housing testing
 - MiniROV fitup and testing
 - 902306 - SINKER
 - Purchasing zebra-tech wiper
 - review of system PCB design
 - Out of Office
 - Working remote 2/27 and 2/28
- Brent Roman
 - Out of Office
 - March 8-15 visiting my dad in Sarasota, FL
- Carlos Rueda
 - 901009 - CANON
 - TethysDash additions to digest requests from Tom's new "hs2dash" client application, to expose acoustic communications between LRAUV and other assets on the Dash UI; hopefully to be exercised during Ecohab.
 - Some MXM related upgrades
 - 901502 - Passive Acoustic Sensing
 - Pypam based processing development.
 - Met with Karl Watkins re his interest in contributing to pypam development.
 - 902204 - Scalable Robotics
 - Met with Eric M.
 - Overhead
 - HR candidate interview
 - Some initial exploration of [OpenAI API](#) (fine-tuning and embeddings) for potential use in MBARI applications. As a possible ref, this [domain specific ChatGPT](#) example looks interesting.
- Karen Salamy
 - Out of Office
 - Now in the office 3 days/week M, T, Th..
- Brian Schlining
 - 500055 - VARS, M3/RS, DSG
 - Ongoing Iron Mountain video imports from our video tapes.
 - The machine running the ML model server used by VARS had a RAID failure. This service has been very popular with the video lab, so Brian moved the service to a temporary machine. Details [here](#).

- Started [investigation into simplifying the ML model server](#) (written by CVisionAi). The service currently has a [complicated software stack](#) that could be greatly simplified.
- 902002 - FathomNet
 - [Integrated the equipment/geological features branches](#) of the VARS knowledge-base into our [WoRMs server](#). These branches will get updated every month when we sync with [WoRMS](#).
 - Working on tasks in the [beta-2.3 roadmap](#).
 - Code review of Genevieve Patterson's fathomnet-qscp service.
- 902304 - Piscivore Cam
 - Met with Jared and Lonny to discuss video management for Piscivore. The video archive for these videos will be on titan:/M3/Projects/Piscivore
- Overhead
 - Met with [Timm Schoening](#) and [Jennifer Durden](#) to discuss details about forming a formal Marine Imaging Society. Brian brought them up to date with the formation of an IEEE technical committee on Marine Imaging (with the helping hand of Bill Kirkwood).
 - IS will be upgrading the production databases from SQL Server 2016 to SQL Server 2022. Reviewed the release notes for potential upgrade problems. The most notable is that [all database connections will be encrypted](#), this might break existing applications. Neil will set up a testing database at foggy.shore.mbari.org to help with sanity checks.
- Out of Office
 - Feb 27 - Mar 3 - Vacation (Backpacking Haleakala so no internet)
 - May 8 - 16 - Out of office
 - Jul 28 - Aug 6 - Vacation
- Alana Sherman
- George Stern